

**AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT**

1. CONTRACT ID CODE

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1 5

2. AMENDMENT/MODIFICATION NO.

0001

3. EFFECTIVE DATE

28 NOV 2001

4. REQUISITION/PURCHASE REQ. NO.

71-2001-02

5. PROJECT NO. (If applicable)

6. ISSUED BY

CODE

N68462

7. ADMINISTERED BY (If other than Item 6)

CODE

DEPARTMENT OF THE NAVY  
NAVAL RESEARCH LABORATORY-SSC  
CODE 3235 ATTN: EJS  
Stennis Space Center, MS 39529-5004

8. NAME AND ADDRESS OF CONTRACTOR (No., street, county, State and ZIP Code)

(X)

9A. AMENDMENT OF SOLICITATION NO.

X

N00173-02-R-SE01

9B. DATED (SEE ITEM 11)

08 NOV 2001

10A. MODIFICATION OF CONTRACT/ORDER NO.

10B. DATED (SEE ITEM 11)

CODE

FACILITY CODE

**11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS**

☒ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers ☒ is extended, ☐ is not extended.

Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods:

(a) By completing items 8 and 15, and returning 2 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment your desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

**13. THIS ITEM ONLY APPLIES TO MODIFICATION OF CONTRACTS/ORDERS.  
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.**

CHECK ONE	A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.
	B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(b).
	C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:
	D. OTHER (Specify type of modification and authority)

**E. IMPORTANT:** Contractor ☐ is not, ☐ is required to sign this document and return \_\_\_\_\_ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16B. UNITED STATES OF AMERICA

16C. DATE SIGNED

(Signature of person authorized to sign)

(Signature of Contracting Officer)

The purpose of this amendment is to answer questions from potential offerors, extend the closing date by one week and revise the Contract Line Item Number (CLIN) structure in Section B.

A. Answer questions and provide clarifications as follows:

1. "Is the customer able to use different signaling techniques other than QPSK and different hardware architectures other than PC104 on this project?"

ANSWER: The specification requires high data rate underwater acoustic communications (ACOMMS) using QPSK modulation schemes and low data rate robust ACOMMS using modulation schemes of the offerer's choice. Alternative approaches will be considered for the high data rate ACOMMS only if the offerer can demonstrate and document that their alternative approach meets or exceeds the performance requirements stated in the specifications.

2: "What is the required communication rate for the acoustic communication modem?"

ANSWER: The nominal data rate is 1000-2000 bits/sec at mid frequencies for a bandwidth of 500-1000 Hz and 10,000-20,000 bit/sec at high frequencies for a bandwidth of 5,000-10,000 kHz for the high data rate ACOMMS.

3. "Is the customer able to use different hardware architectures other than PC 104 on this project?"

ANSWER: See the answer to question 1 above pursuant to alternative approaches.

4. For radio coverage analysis, what is the maximum range between the surface buoy and the shipboard system?"

ANSWER: The radio coverage is expected to be at least 6 nm in a sea state 2, with the buoy antenna at 2 meters and the shipboard antenna at 6 meters.

5. "In what sea state is the radio link required to operate?"

ANSWER: Up to sea state 3, with 4 being preferred.

6. "We respectfully request a two-week extension to the proposal submission date."

ANSWER: The Government hereby extends the closing date by one week to 17 DEC 2001.

7. What is the anticipated award date for this effort?

ANSWER: Every procurement is different and the timeframe of the procurement process varies greatly.

8. The SOW, paragraph L-12 states "The Government may make multiple awards resulting from this solicitation." Does this mean that separate CLIN's could be awarded to different companies?

ANSWER: Yes.

9. CLIN 0003 requests a price for 4 ea. Acoustic releases in accordance with Paragraph 8.1 of Attachment (1). That paragraph specifies four dual releases and one Shipboard Command unit. Should Pricing option 0003 reflect the price for one lot that includes four Dual releases and one shipboard command unit?

ANSWER: The proposal should quote pricing for dual release systems in quantities from one to four, and allowing for the purchase of one dual release system or any number up to four. See Attachment (1) to this amendment for revised Section B.

10. CLIN 0007 requests a price for 1 ea. Additional Tether Assemblies in accordance with Paragraph 8.5 of Attachment (1). That paragraph specifies one additional tether cable for each delivered ACDS buoy systems. Should Pricing option 0007 reflect the price for one lot that includes four additional tether cables?

ANSWER: The proposal should quote pricing for additional tethers in quantities from one to four, allowing purchase of either a single tether or any number up to four.

11. Paragraph 8.4 of Attachment (1) states that The offeror shall provide one, two, three or four additional ACDS buoy systems. Should our pricing reflect the possible purchase of less than four optional ACDS buoy systems (CLIN 0006)? Should our pricing reflect the possible purchase of less than four of CLIN 000101?

ANSWER: It is the government's intention to purchase four ACDS systems (CLIN 000101). The proposal should quote pricing for additional ACDS systems (CLIN 0006) in quantities from one to four, allowing purchase of a single additional ACDS system or any number up to four.

12. In Attachment (1), paragraph 1.0 refers to "linear support frame". Paragraph 3.3 refers to a "semi-rigid support structure" and "the array cable/support structure" A 20 meter long semi-rigid array would be difficult to handle aboard ship. Please clarify what you intend by these terms with regard to the design of the hydrophone array.

ANSWER: Paragraphs 3.3 and 4.4.1 should be amended as follows. The 20-meter array shall be a flexible support structure. The 2-meter array shall employ a semi-rigid structure.

13. Attachment (1), paragraph 3.3 calls for adjustable hydrophone spacing. Is each hydrophone required to be independently positioned anywhere within the 20 meter or 2 meter total length of its respective array?

ANSWER: Paragraphs 3.3 and 4.4.1 should be amended as follows. The 20-meter array shall have one breakout for each hydrophone, with breakouts evenly spaced at 3.0-meter intervals about the center. E.g. breakouts at the 3-meter and 17-meter positions and 6 breakouts evenly spaced over the 14-meter structure between these outer breakout positions. Each hydrophone for the 20-meter array shall include 2-meters of cable with an end connector for attachment to a mating connector at the breakout position. Each hydrophone shall be affixed to any position on the support structure within 3 meters of its respective breakout position. The specification for the 2-meter array shall be amended to include one breakout connector for each hydrophone and shall allow for quick removal and replacement of individual hydrophones.

14. Paragraph 4.3.6 of Attachment (1) states "Each channel's gain shall be individually set by the ACDS Command PC's I/O board to cover the range (nominally) 0 to 42 dB in 6 dB steps (envisioned as 1-2-5 sequence) ...." 6dB steps and a 1-2-5 sequence seem mutually exclusive, please clarify.

ANSWER: Channel gain may be adjusted in 6 dB steps (gain of 1x, 2x, 4x, 8x, 16x, 32x, 63x, and 126x) or adjusted in 6.67 dB steps (gain of 1x, 2x, 5x, 10x, 22x, 46x, and 100x).

15. Paragraph 4.4 of Attachment (1) specifies calibration of hydrophone sensitivity. Is full in-water acoustic calibration over the frequency range using a government or commercial calibration facility required for all hydrophones?

ANSWER: Yes

16. The Navy's underwater measurement facilities of NUWC serve as the reference facility for the US and their calibration accuracy is no better than +/- 1 dB. How can the accuracy requirement of paragraph 4.4.4.a, (+/- 0.5 dB) be met?

ANSWER: Specification 4.4.4.a (hydrophone sensitivity calibration) is hereby amended to +/- 1 dB.

17. In paragraph 4.6.d, the projector flatness is specified. What transmitting system (power amplifier/projector) flatness is required and isn't it better to specify this parameter instead of a projector flatness requirement?

ANSWER: The +/- 6 dB specification in 4.6.d shall apply to the system's acoustic frequency response, including but not limited to the power amplifier, matching network, and projector.

18. Paragraph 3.1.3 of Attachment (2) specifies that source code be provided for DSP functions of the acoustic modem. We would like to propose providing COTS software routines which are callable by the command and control software for some data processing tasks. Full interface details for these library routines would be included. These routines were developed with non-Government funds, are proprietary and source code would not be provided. Would this approach meet the specification?

ANSWER: If only DSP vendor supplied library routines are considered as proprietary, the specification would be met. Awardee developed DSP routines consider proprietary would not met the specification.

19. What is the minimum data rate required for the acoustic modem function?

ANSWER: The data rate limit will be that imposed by the environmental conditions of the channel being operated in. The nominal data rate is 1000-2000 bits/sec at mid frequencies for a bandwidth of 500-1000 Hz and 10,000-20,000 bit/sec at high frequencies for a bandwidth of 5,000-10,000 kHz for the high data rate ACOMMS.

20. Attachment (1) Paragraph 1.0 states that array sensitivity shall be  $-178 \text{ dB//v/uPa}$ , but paragraph 4.4.4 states that sensitivity at the input of the hydrophone pre-amplifier shall be  $-178 \text{ dB//v/uPa}$ . The latter implies an array sensitivity of  $-138 \text{ dB//1v/uPa}$ . Please clarify.

ANSWER: Paragraph 1.0 and Paragraph 4.4.4 both specify the nominal array sensitivity PRIOR to amplification by the hydrophone preamplifier. When the nominal preamp gain of 40 dB is factored in, the nominal array sensitivity becomes  $-138 \text{ dB//1v/uPa}$ .

B. Revise the closing date for receipt of offers in Section 9 of the solicitation to: **"17 DEC 2001"**

C. Delete Section B of the solicitation in its entirety and replace it with the revised Section B as shown in Attachment (1) of this amendment.

**PART I - THE SCHEDULE**  
**SECTION B**  
**SUPPLIES OR SERVICES AND PRICES/COSTS**

**B-1 SUPPLIES OR SERVICES AND PRICES/COSTS**

ITEM NUMBER	SUPPLIES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
0001	The Contractor shall provide the following items in accordance with the specifications set forth in Section C and its Attachment 1 and Exhibit A.				
0001AA	Acoustic Communications and Data Storage Buoy System (ACDS)	4	EA	\$	\$
0001AB	Shipboard Monitor/Control Station	1	EA	\$	\$
0001AC	Operation Manual	1	EA	\$	\$
0001AD	Technical Manual	1	EA	\$	\$
0001AE	Software	1	SET	\$	\$
0001AF	Drawings	1	SET	\$	\$
0001AG	Documentation Form	1	SET	\$	\$
0001AH	Test Plan	1	EA	\$	\$
0002	The Contractor shall provide the following items in accordance with the specifications set forth in Section C and its Attachment 2 and Exhibit A.				
0002AA	Acoustic Communications Modem Personal Computers (Modem PC)	4	EA	\$	\$
0002AB	Operation Manual	1	EA	\$	\$
0002AC	Technical Manual	1	EA	\$	\$
0002AD	Software	1	SET	\$	\$
0002AE	Drawings	1	SET	\$	\$
0002AF	Documentation Form	1	SET	\$	\$
0002AG	Test Plan	1	EA	\$	\$

ITEM NUMBER	SUPPLIES OR SERVICES	QTY	UNIT	UNIT PRICE	AMOUNT
OPTION 1 0003	Dual Acoustic Anchor Releases System in accordance with Attachment 1, paragraph 8.1.				
0003AA	Acoustic Releases, in accordance with Attachment (1), paragraph	4	EA	\$	\$
0003AB	Shipboard Command Unit and Associated hardware in accordance with Attachment 1, paragraph	4	EA	\$	\$
OPTION 2 0004	MCS Industrial PC in accordance with Attachment 1, paragraph 8.2.	1	EA	\$	\$
OPTION 3 0005	MCS Variable DC Power Supply in accordance with Attachment 1, paragraph 8.3.	1	EA	\$	\$
OPTION 4 0006	Additional ACDS Systems in accordance with Attachment 1.	4	EA	\$	\$
OPTION 5 0007	Additional Tether Assemblies in accordance with Attachment 1, paragraph 8.5.	1	EA	\$	\$
OPTION 6 0008	Additional Modem PC Systems	4	EA	\$	\$
TOTAL DOLLAR AMOUNT FOR CLINs*, IF EXERCISED:		\$			

\*CONTRACT LINE ITEM NUMBER